



MANUFACTURING COMPANY

SUBSIDIARIES:
FARRINGTON ELECTRONICS, INC.
FARRINGTON BUSINESS MACHINES CORPORATION
Shirley Industrial Area
6707 Electronics Drive
Springfield, Virginia 22150
Area Code 703 Fleetwood 4-5000
Cable Address FARMANCO

March 31, 1966

Mr. T. Nelson
Box 1546
Poughkeepsie, New York

Dear Mr. Nelson:

We thank you for your recent inquiry regarding our new Series III Optical Reading Equipment. We have pleasure of enclosing herewith literature on some of the models in our range of reading machines.

The Page Reader system is designed to read multiple lines of typewritten or printed information from a page and convert to EDP input. The Document Reader handles individual forms reading one or two lines and again converts normal printed characters into a data processing language.

Our machines have a multi-font reading capability and can recognize any of the type fonts designed for Optical Character Reading. A variety of outputs are available. We can work on-line or output magnetic tape, paper tape, or punch cards as required.

If you wish to have further information on our equipment which is more specific to your own requirements, we will be happy to arrange for one of our Representatives to discuss Farrington Reading Equipment with you. Our branch office responsible for your area is shown below.

Yours sincerely,

Alan F. Stocker
Manager, Sales Promotion

AFS/mmc
enclosures
850 Third Avenue
New York, New York 10022

FARRINGTON



Series III

DOCUMENT READER INFORMATION MANUAL

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FARRINGTON ELECTRONICS, INC.
6707 ELECTRONICS DRIVE
SPRINGFIELD, VIRGINIA 22150
(Area code 703) Fleetwood 4-5000

CONCEPT

The Farrington Document Reader is a reading computer that reads printed alphanumeric information and converts that information into the data processing language of magnetic tape or punched cards. Alternately, the Farrington Document Reader can operate on-line.

The Farrington Document Reader automates computer input independently of computer main frame time, expense, and programming by providing data compatible to all major computing systems.

DOCUMENT FEED

The Farrington Document Reader feed is fully automatic and operator adjustable. Photoelectric sensors monitor the document progress through the feed and sorting gates.

DOCUMENT SPECIFICATIONS

Documents of varying sizes from 2.25 inches to 8.5 inches in width and from 2.0 inches to 6.0 inches in height are acceptable. Paper or card stock is acceptable. Generally documents may be from 0.002 inches to 0.010 inches thick with a minimum substance weight of 14 pounds.

PRINT ZONE

The print zone is that portion of the document that contains all of the information to be read. It may be located in either the upper or lower portion of the document.

Maximum printing zone width is governed by the printing zone cam. The following cams are available:

2.1 inch

4.1 inch

5.1 inch

6.6 inch

CHARACTER SPACING

The Document Reader will read characters spaced at 10, to the inch or less, such as 7, or 6 to the inch.

TWO LINE READ

This feature permits reading two lines in a single pass of the document. One line must be directly above the other.

INFRA RED

This feature permits the use of humanly readable form lines and instructions that become invisible to the document reader.

READING CAPABILITY

The Farrington Document Reader reads one or two lines on documents prepared on high-speed computer printers, electric typewriters, adding machines, cash registers, and imprinters equipped with one or more of the optical type fonts, designed to provide maximum readability.

The optical type fonts may be composed of the numeric characters 0-9, the 26 alphabetic characters, special symbols, and punctuation marks.

0123456789ABCDE
FGHIJKLMNOPQRST
UVWXYZ= Δ ' $\cdot$ /+-[$\neg$
L]¥\$" ' () : ; & # ? ¶

FARRINGTON 12L TYPEFONT

MARK GUIDE RECOGNITION

The document may contain Mark Guides printed in scannable ink. Information may be added to any document by filling in the mark guide with pencil or scannable ink.

MATRIX MARK SCANNING

This feature allows reading of information manually marked by pencil or pen on the scanning documents. Mark scanning is accomplished at a separate read station which senses the presence or absence of a mark in any one of 12 positions in a vertical column. Up to forty-eight 12-position columns can be printed on a document. The matrix marks can be encoded to produce numeric or alphabetic characters in output records.

RE-SCAN

The Document Reader will accept a wide range of print quality since the re-scan feature will allow lines to be read over again if information is not recognized as valid. The number of re-scans may be programmed.

PROCESSING SPEEDS

The Document Reader reads documents at speeds of up to 440 documents per minute. The throughput rate of information obtained from document reading is expressed in average reading speed per document for each application. A combination of factors such as document size, scan zone length, and number of lines per document enter into the calculation of average reading speed.



FARRINGTON DOCUMENT READER

FORMAT CONTROL

Interchangeable Format Control plugboards provide programs for each Document Reader application. Functions include character control, right register routines, number checking routines, code emitting, and definition of record length.

FLAG FUNCTION

Under the control of the Format Control plugboard this feature allows the use of a Recognition Mark Guide as a flag to perform alternative scanner functions. For example, the acceptance of one reading field and the deletion of another or the accumulation of a Matrix Mark scanning amount in place of a previously printed amount.

BATCH HEADER

The Batch Header feature allows data read from header input documents to be included in the output record. If punched tabulating card output has been selected, the header information will appear in a header card and in subsequent data cards. If the reader output is to magnetic tape the header information will be recorded once on tape.

LISTER

The list printer prints on a continuous journal tape, information received from the reader or the accumulator. Output consists of the digits 0-9 and certain symbols. Print capacity is 12 positions.

After reading, documents may be sorted to any of the three output stacking pockets under program control.

INPUT DATA SWITCHES

Eight 12-position data switches are mounted on the operator's control panel. They are used by the operator to enter alphabetic or numeric constants in output records.

RIGHT REGISTER

A feature that allows variable-sized fields such as money amounts to be programmed to right register for proper positioning in the output record. Remaining positions to the left contain valid blanks. Maximum capacity is eight characters.

CHOICE OF OUTPUT

The user may select document reader output compatible with his data processing system. This can be in the form of magnetic tape of various densities, or alternatively to column punched cards.

Alternately, the document reader may be connected directly on-line to the computer as an input device. All reader programming capabilities are retained and performed independent of computer control, so that the computer remains simultaneously available for unrelated data processing applications. Assembled data is stored in the reader buffer memory. Under computer control, data is then transferred to the computer, where further processing may be accomplished at the discretion of the programmer.

PRE-OUTPUT CHECKS

NUMBERS CHECK

A 9's check or Luhn's check may be made on selfchecking number fields selected by the format control plugboard. Failure of a field to pass the numbers check will cause the document to be re-scanned. Failure at the programmed re-scan limit will result in the document being rejected.

PARITY CHECK

Each character is examined twice for parity before being placed in the output record - once when the character is entered into storage, and again when transferred from storage to the output medium.

DOCUMENT COUNTERS

Four visible counters are mounted on the operator's control panel. One counts the total number of documents processed. The other counters reflect the number of documents sorted to each of the three output stacking pockets.

ACCUMULATOR

The accumulator is an optional feature with a capacity of 10 digits in and 10 digits out. It accumulates fixed or variable amounts. Totals are transferred to output records and may be printed on a lister if that option is elected.

OPERATOR CONTROL

Load and unload documents.

Adjust feed to required document specifications.

Interchange format control plugboards.

Insert constants via data switches.

Adjust printing zone position.

Review and record counter information.

OPERATOR INDICATORS

The Operator Indicator panel monitors machine operations and relays the visual instructions for any required corrective action; such as:

input stacker empty
output stacker full, etc.



THE FARRINGTON OPTICAL SCANNER



THE OPTICAL SCANNER... A MACHINE THAT

- It reads information from ordinary data source equipment
- It reads and translates into business-machine language; punched cards, punched paper tape, or magnetic tape.

THE OPTICAL SCANNER READS:

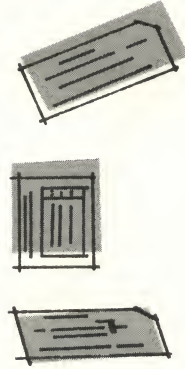
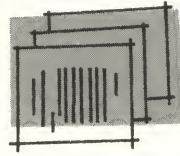
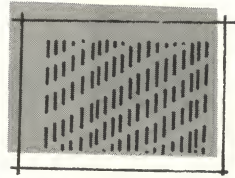
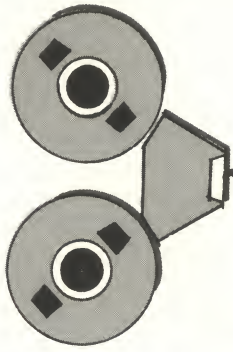
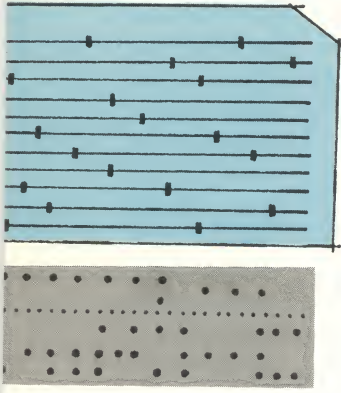
- numbers, from 0 to 9
- capital letters, from A to Z
- common punctuation marks
- special symbols

THE OPTICAL SCANNER ALSO READS FROM:

- small documents
- page documents
- documents of paper stock or card stock

THE OPTICAL SCANNER READS:

- sales invoices
- cashier stubs
- sales reports
- checks
- subscription notices
- mailing lists
- garment tags
- typewritten messages
- insurance policy declarations
- insurance premium notices
- telephone payment stubs
- utility payment stubs
- and many other documents



HOW IT

READS

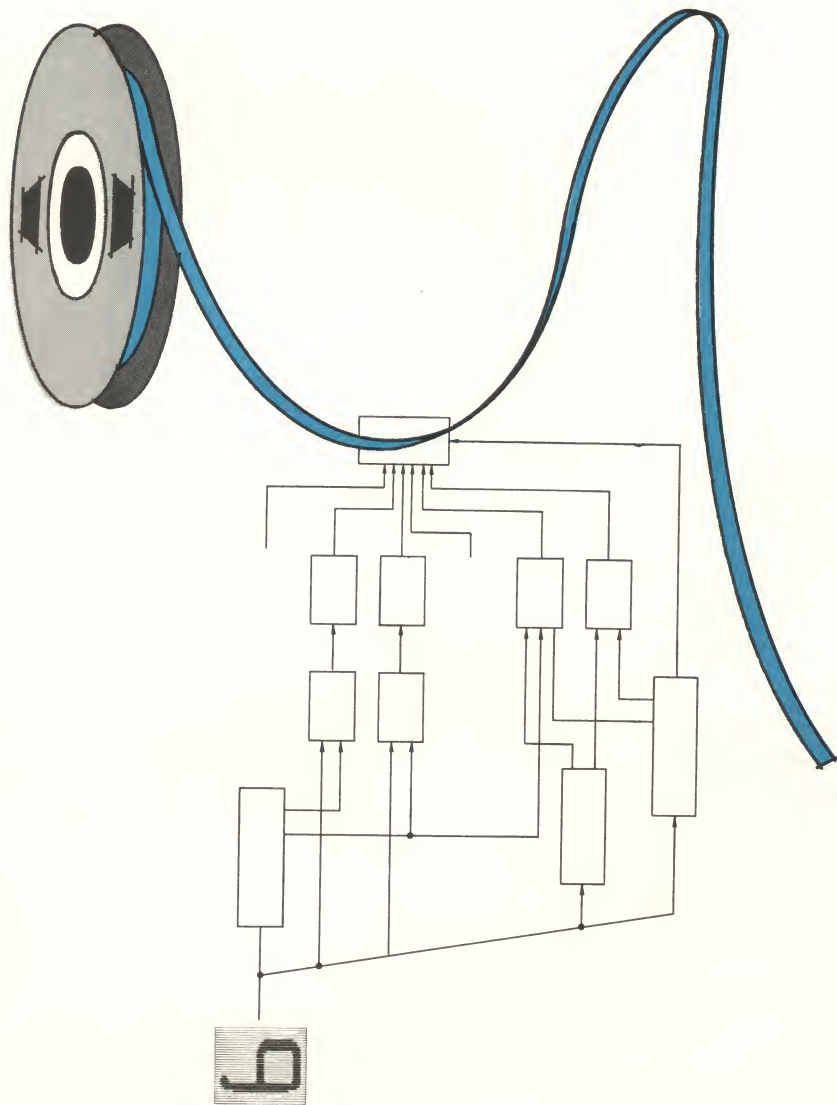
Optical Scanners employ a high-speed, high-resolution method of scanning letters and numbers. An electro mechanical scanner sweeps over the data image just as a TV camera scans a picture image.

A letter or number is scanned many times. Each scan represents one vertical slice. A photomultiplier—electric eye—converts each scan into electric television or video pulses.

A complete set of video pulses from a letter or number contains all the information in electronic form. Played back on a picture tube, these video pulses give a TV picture of the scanned letter or number.

The video pulses are analyzed to identify the letter or number scanned and to activate a punching or magnetic recording device.

The basic job of every Optical Scanner is to read data printed on the ordinary data source devices which are used in business and to translate that data into the machine language needed for *punched cards*, *punched paper tape*, or *magnetic tape*. The basic goal is to do this accurately, more economically, much more speedily than laborious keyboard methods.

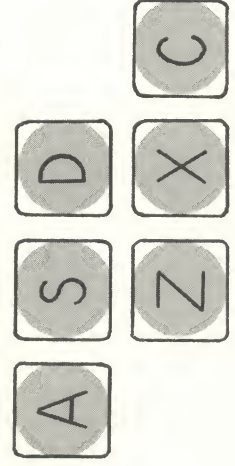
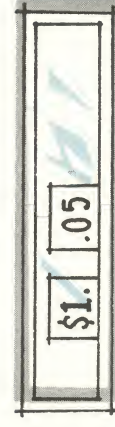
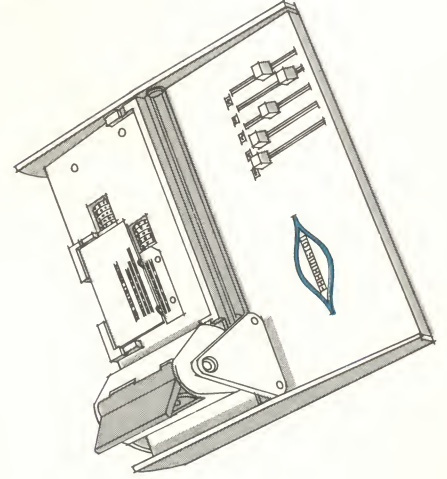
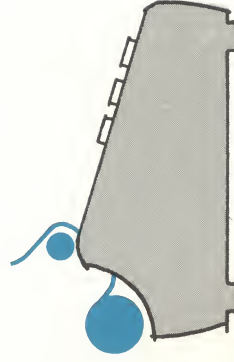
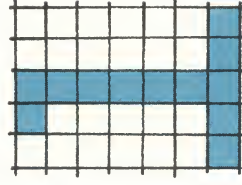
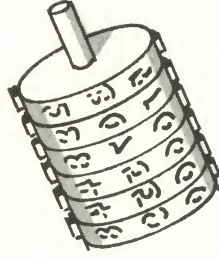


IT READS DATA FROM...

Data sources for the Optical Scanner are ordinary data source devices.

Some examples:

- high-speed wheel printers
- high-speed chain printers
- high-speed matrix printers
- high-speed stylus printers
- adding machines
- typewriters
- cash registers
- credit card im printers





In addition to its basic function—reading and translating—the Optical Scanner has other abilities which further contribute to the effectiveness and economies of a data processing system.

Some examples:

ACCUMULATING: In order to prove previously established batch totals, Optical Scanners accumulate variable amounts. Totals can either be transferred to the output record, printed on a list . . . or both. With accumulating, the scanner adds and subtracts, recognizes signs, and produces true totals, positive and negative.

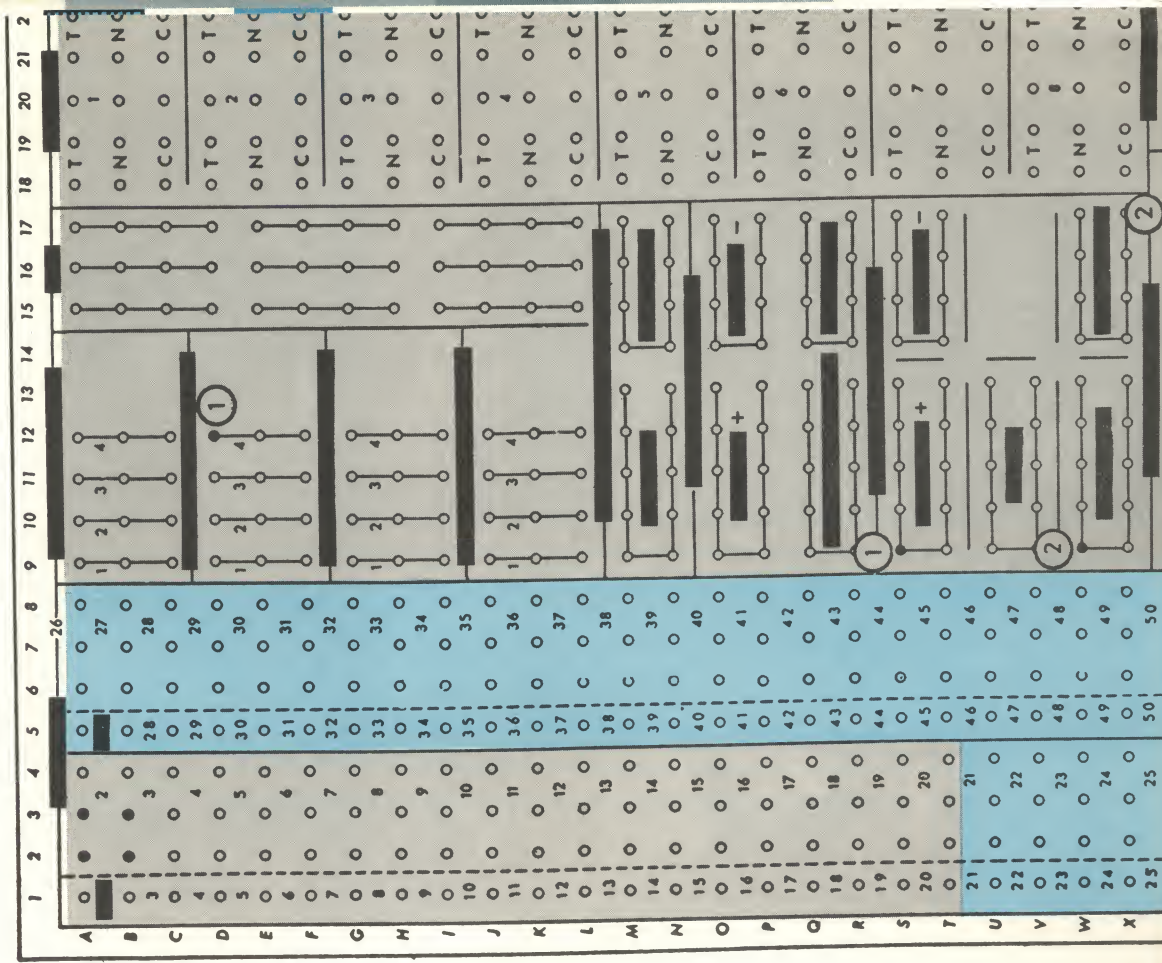
LIST PRINTING: To monitor batch detail and summary information, list printing occurs on continuous tape. Information for list printing is supplied from scanned or accumulated data.

BATCH HEADING: To identify every output record, information read from header documents in a batch is included in every output record resulting from the reading of all documents in that batch.

MARK SCANNING: In some applications it is desirable to combine mark scanning with the optical scanning of letters and numbers. Preprinted mark guides on a document, marked with pen or pencil, are optically read and converted to machine language as part of the regular operation of an Optical Scanner.

PROGRAMMING: Flexibility in reading format and output format is achieved through programming. A variety of scanned data arrangements are accommodated by inter-changeable control panel wiring. Wired control panels select the program steps. Each program step performs a function such as:

- Read and store a digit
- Read but ignore a digit
- Select set switch information and store
- Fill zeros in storage
- Begin reading a fixed length group of digits
- Locate and test a check digit
- Blank out a digit position
- End reading



READS

INPUT SYSTEM ELEMENTS: The Farrington Optical Scanner is the key component in an automated input system. Its use in any application is guided and maintained with the support of Farrington's systems and maintenance staffs. Installation experience has contributed to the development of helpful systems techniques. Some important elements of automated input systems:

■ **documents:** Automatically handled in the Farrington Optical Scanner, documents may be as small as a cashier's stub or as large as a legal-size page.

form design: It is often desirable to rearrange information to be read in the Farrington Optical Scanner for greater efficiency and processing rates. Forms design is important because the documents being processed are read by customers, cashiers, clerks, as well as the Farrington Optical Scanner.

■ *type font*: Farrington Optical Scanners read a variety of type fonts. Through long experience in optical scanning systems, Farrington engineers have developed a type font which is especially suited to optical scanning systems—the Selfchek® type font.

The purpose of the Selfchek font is to compensate for the wide variety of print quality in the ordinary data source equipment. To overcome the greatest amount of uncontrolled print quality, the Selfchek shapes have two main features: efficient use of the character area, and selfchecking or error-preventing stroke arrangements.

[illegible]

Selfcheck type font, while legible as any font to the human eye, increases the reliability and efficiency of optical scanning systems.

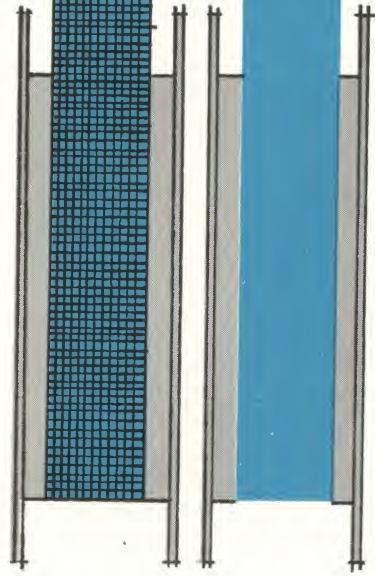
■ *transfer method*: Source data used in optical scanning systems are created by a variety of source data devices which print in a variety of ways. Some use ink ribbons. Others use carbon. This and many other factors affect the appearance of the printed character to be read by the Farrington Optical Scanner.

■ *accounting control*: Such controls as batch balancing and number checking are desirable. Batch balancing is desirable to prove that the accumulated output of the Farrington Optical Scanner equals the total assigned to a batch of documents.

Standard number checking schemes, which normally employ a digit known as the check digit, help to establish the validity of a group of numbers (account number, money amount, other codes) to be entered automatically into a system by a Farrington Optical Scanner.

■ *quality control*: Because print quality from the ordinary data source device varies greatly, the Farrington Optical Scanner handles a great variation in print quality. Quality control keeps this variation within manageable limits.

Continuous control over the material being prepared for an optical scanning system ensures that it will be automatically processible.



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The Farrington Optical Scanner is already being used in many different applications. The versatile Farrington Optical Scanner may fit into *your* present business system by automating a manual operation. Or it may make possible a whole new, more economical and more accurate system.

The Farrington Optical Scanner has this versatility to accommodate varied forms of accounting operations in different businesses. Some examples of its use in diverse fields:

- sales report entry
- computer loading
- universal credit cards
- petroleum credit accounting
- dividend check preparation
- utility billing
- insurance premium billing
- insurance claim payments

- traveler's check reconciliation
- insurance premium cash accounting

The same need for versatility applies to non-accounting operations. Some examples:

- subscription promotion entry
- file conversion
- insurance declarations
- message transmission
- information distribution

THE OPTICAL SCANNER FOR YOU

With Farrington specialists, it is relatively easy to plan and to get into operation an automated input system. Farrington Electronics Inc. maintains a nationwide organization of qualified sales and systems executives—specialists in the input area of data processing.

Operational experience with Farrington Optical Scanners has made it possible to install equipment with maximum operational readiness to solve a particular input problem.

SOME SUGGESTIONS:

- *Investigate* to determine *where* in your data processing operation optical scanning can be used to advantage.
- *Isolate the input problem* and note preliminary optical scanning requirements.
- *Determine the input system elements* of your data processing operations.
- *Study the input system* in order to select the Farrington Optical Scanner which is best suited to do the job.
- *Seek the advice* and input-systems guidance of a Farrington representative for each of the above suggestions.

The information you need to contact a Farrington representative can be found on the back cover of this booklet.





FARRINGTON ELECTRONICS INC., 7019 EDSALL ROAD, ALEXANDRIA, VIRGINIA

... for more information about how a Farrington Optical Scanner can benefit your business data processing ...